



**A STUDY ON THE EVALUATION OF PERCEPTION REGARDING
THE COMPUTER AIDED PROGRAMMES, AS A TEACHING-LEARNING
TOOL, AMONG THE 2ND M.B.B.S. STUDENTS OF BURDWAN
MEDICAL COLLEGE , WEST BENGAL, INDIA.**

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ABSTRACT:

Background: Computers have changed the method and process of education for ever. Historian Eric Ashby has called this technology the fifth major revolution in education- the first four being, education by professional teacher; development of the written script, invention of printing and recognition of pedagogy as specialized science [1]. In the field of medical education too, the use of computers will be taken as granted [2]. Computer aided programmed as a teaching-learning tool, has several advantages, as the computer never gets bored or irritated, does not make mistakes on its own, permits the learner to decide his or her own pace of learning and does not develop positive or negative bias towards the learner and more importantly, stimulate the “cognitive” process of the students [3,4].

In the recent years there is rapid advancement in knowledge and technology in every field including in the field of medical science. This has led to rapid emergence of the complexities of medical education, and extended the scope of medical education with the adoption of several innovative teaching approaches such as the computer aided programmes as a teaching-learning tool [5] This has been implemented in medical schools, by 95% of medical schools in the United States and 100% across medical schools in Canada and United Kingdom [6]. This trend need evaluation on the computer aided programmes in undergraduate M.B.B.S. student, considering the nature of the trend, advantages, and perception of the students in implementation of this trend in the medical curriculum. This type of study was not conducted before at our institution.

In this scenario the present study was important.

Objective: The objective of the study was to evaluate the perception of the 2nd M.B.B.S. students of the Burdwan Medical College, West Bengal, India, regarding the computer aided programmes as a teaching-learning tool, in the undergraduate curriculum.

Materials & Methods: A predesigned structured questionnaires (table no: 1) were distributed among the randomly selected 95 2nd M.B.B.S. students of the 2010-11 batch during the month of November, 2011 at Burdwan Medical College, West Bengal, India.

The questionnaires were based on the perception & opinion. The response of the questionnaires was assessed in the three point response scale. After that the responses of the each individual student were assessed and the data were analyzed on the SPSS ver.16 in the windows 7.

Results: Out of the 91.75% of the responder, male was 91.75% and female was 94.11%. More than 75% of both groups gave the opinion that computer aided programmes as a teaching-learning tool was better tool than other teaching-learning tool, more than 85% of the students of both the groups believe that it is inevitable in undergraduate medical education, but 40% of the male group and 25% of the female group believe that it is expensive especially in this part of the country, West Bengal, and difficult to integrate with the main curriculum. The results also showed that there was significant ($p < 0.05$) difference between their perception, female students were more satisfied with the latest tool of medical education.

Conclusion: There is need of further study in this field, especially to compare this latest gadget of medical education with other older, conventional method of teaching-learning process to achieve a definitive conclusion.

Key Words: Computer, Teaching-learning tool, Perception, Medical Education.

INTRODUCTION

A computer is basically an electronic device that can store, retrieve, process and output data. The work of data handling has been carried to high level. Computer handles any data that can be digitalized. The information and communication revolution that we are witnessing has become possible because of the advent of the computer. Today, those who are computer-literate have a definite advantage over those who are not [7].

Computerized learning clearly offers exciting potential for improving student learning, either as an aid to or as a replacement for traditional formats, or for the development of innovative approaches. However, rigorous evaluation of the utility of computer-aided learning in enhancing student learning is essential [8].

In different departments though computer aided programmes are being used as a teaching-learning tool, but in a haphazard way. It requires fewer face-to-face lectures. Each student can prefer his or her own topic and helpful to conceptualize the difficult biochemical structure or microscopic images. Greenhalgh T stated that whole world universally acknowledged a truth that the education of undergraduate medical students will be enhanced through the use of computer aided learning process and expansion of computer aided learning requires cultural change as well as careful strategic planning, resource sharing, staff incentives, active promotion of multidisciplinary working and effective quality control. Access to the wide range of online options make the learning more exciting, effective and likely to be more retained. He mentioned also that this assumption is potentially but by no means inevitably correct [9]. Hence need of study of evaluation of perception and opinion of the students.

Greenhalgh T suggested the following types of computer aided learning material [9]:

Email discussion group		Interactive constructivist	
Email contact Between tutor and student	Interactive IT package allows feedback during lectures	Computer assisted Group work within traditional degree course	Fully web based interactive degree course
Students post summaries on local internet	Bulletin board and virtual bar	MCQs for self assessment on local internet	Freestanding web based study modules
Low tech, low cost, low skill	Students are directed to online catalogues and databases	Students use presentation software (Power Point, etc)	High tech, high cost high skill
Assignments submitted on floppy disc	Hard copy materials e.g., reading lists, on local internet	Online books, atlases archives, galleries	Web based non- interactive degree course
		Didactic, instructivist	Lectures on digital video disc

All the Medical Education provider should have excitement about the new innovative tool of teaching-learning process – a kind of third generation distance technologies, to provide a “rich environment for active learning” stated by Grabinger S and Dunlap JC, in which the learner actively builds rather than passively consumes knowledge [10]. For this a dynamic, open ended, multidimensional knowledge is required, rather than static and self centered knowledge, Computer technologies provide a wide range of learning activities which engage students in a continuous collaborative process of building and reshaping understanding. Yet despite theoretical appeal, broadly the real advantages of computer assisted learning in medical curriculum outside the research setting have yet to be shown consistently [10].

In this perspective, at this part of the country, my study was important, for evaluation of opinion and perception of computer aided learning programmes, as a teaching-learning tool, among the 2nd M.B.B.S. Medical Students at the Burdwan Medical College, West Bengal, India.

MATERIALS AND METHODS

Subjects: In my study 95 students of the 2nd M.B.B.S. course of the 2010-2011 batch, are randomly recruited, at the Burdwan Medical College, West Bengal, India. Predesigned

Structured Questionnaires, containing 11 points (Table No 1.) were distributed among all individual students separately. Questionnaires were based on the perception of the students regarding the computer aided teaching-learning programmes.

Outcome measurements: A three point response scale, 1- agrees, 2- do not know, 3- disagree, was used to assess the response of the questionnaires. The response and opinion of the each individual student was assessed.

Study design: My study was prospective, open level, unblinded, and uncontrolled study. Duration of the study- one month, on the month of November, 2011.

Statistical analyses: All the collected data were analyzed with the descriptive statistics by using the Statistical Package for the Social Science (SPSS) ver-16 in Windows-7. The independent Simple t-test was applied to detect any significant difference of perception between the male group and female group. A value of $p < 0.05$ was considered statistically significant.

Table No. 1: Showing the perception based 11 pointed questionnaires:

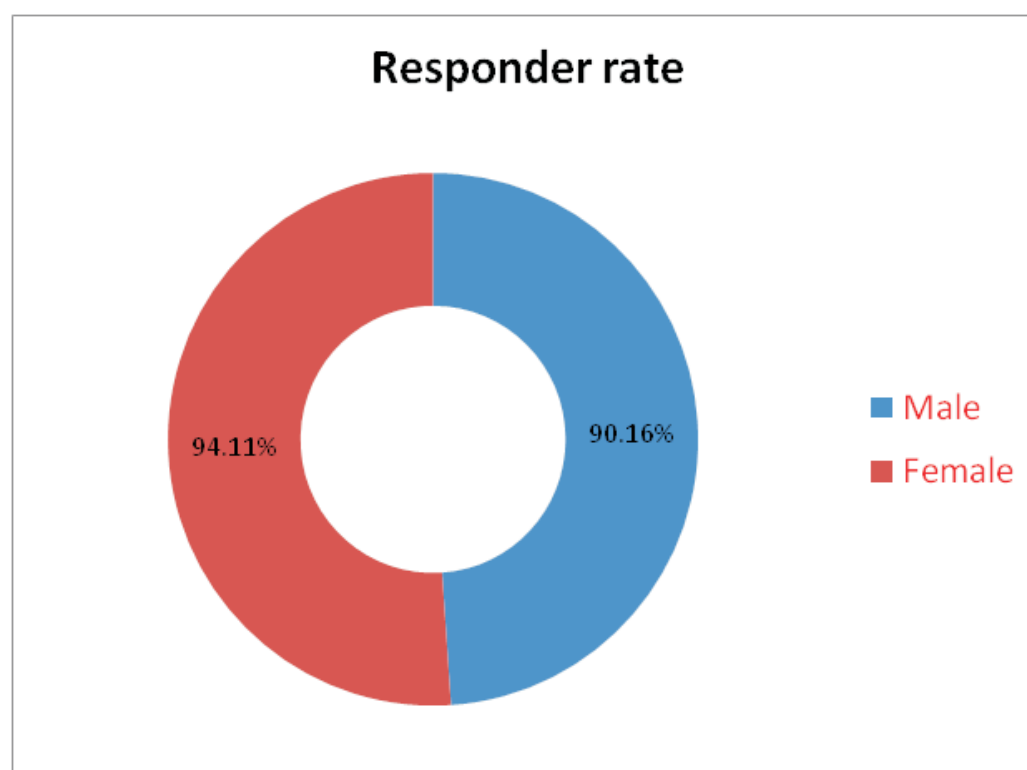
Question No.	Type of Questionnaires
1	Computer aided teaching-learning programme is interesting to me.
2	Computer aided teaching-learning programme is easy to handle for me.
3	Computer aided teaching-learning programme is better tool, than other tools of teaching – learning process, according to my opinion.
4	Computer aided teaching-learning programme is inevitable.
5	Computer aided teaching-learning programme is convenient & flexible.
6	Computer aided teaching-learning programme is suitable or helpful in personalized learning.
7	Computer aided teaching-learning programme is an extremely efficient way to achieve the ultimate goal of higher education.
8	Expansion of computer aided teaching-learning programme requires cultural changes as well as careful strategic planning.
9	Computer aided teaching-learning programme is expensive, impractical, difficult to integrate with the mainstream curriculum.
10	In computer aided teaching-learning programme, gradually more skilled developed.
11	In computer aided teaching-learning programme, I had no fear factor, fear of new machine, fear of new software, fear of destroying data.

The responses and answer of all the questionnaires was assessed on the three point response scale- 1- Agree, 2- Do not know, 3- Disagree.

RESULTS AND ANALYSIS

In my study, total 95 students of 2nd M.B.B.S. course were recruited randomly. Male was 61 (64.21%) and Female was 34 (35.79%). Mean age was 19 ± 0.8 years for the male and 19 ± 0.6 years for the female students. The 11 point based questionnaires were distributed among the recruited students. 87 students (91.75%) responded. Out of that 55 students (90.16%) were Male and 32 students (94.11%) were Female.

Figure 1: Showing the responder rate among the Male and Female 2nd M.B.B.S. students:



The above figure 1 showed that female students responded better than male students. The details of the response rate, in the three point response scale, among both Male and Female 2nd M.B.B.S. students of 10-11 batch are distributed in Table No 2 and in Figure No 2.

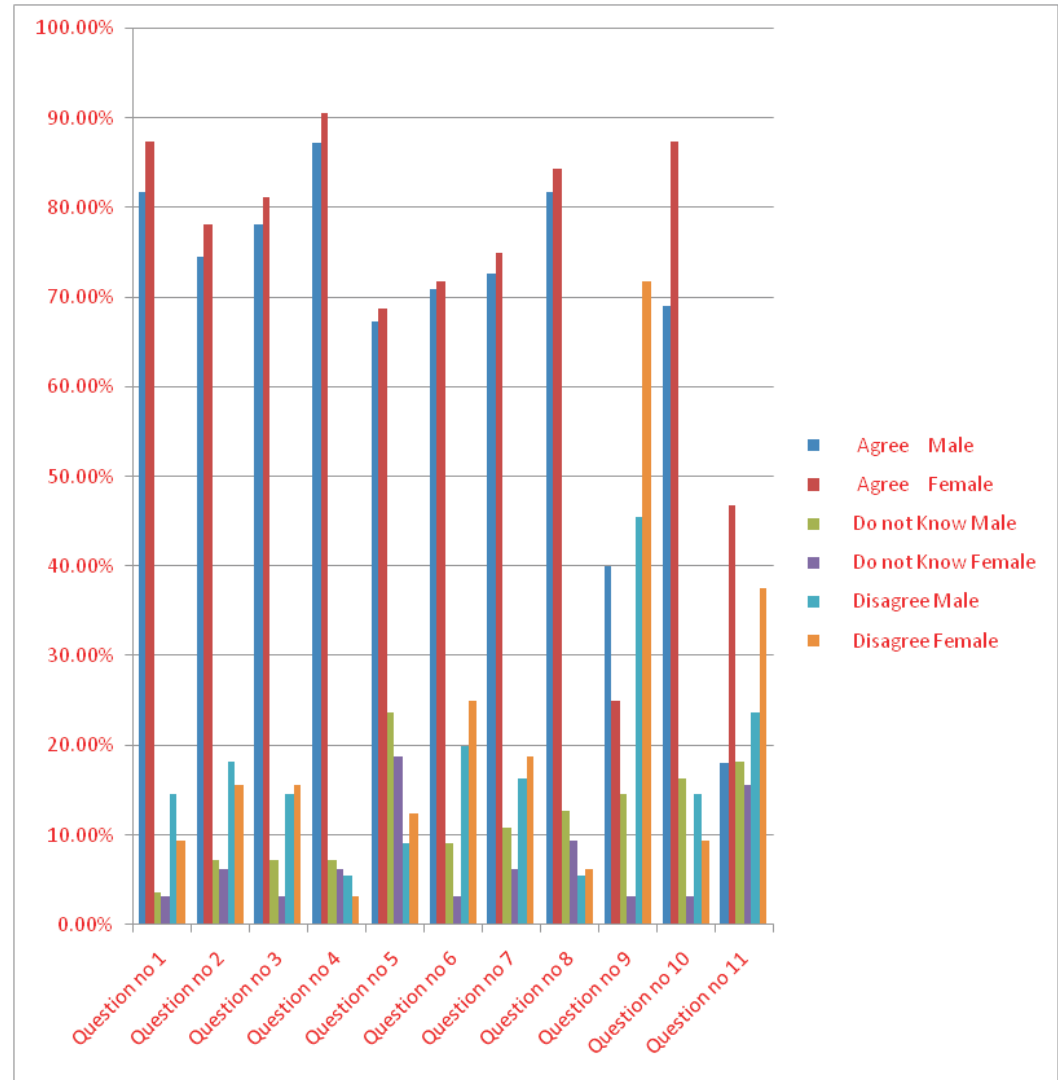
Table No 2: Showing the details responses of the 11 point questionnaires, in the three point response scale, among Male and Female 2nd M.B.B.S student of Burdwan Medical College:

Figure No. 2: Showing the differences in the response rate of the 11 point perception

	Agree		Do not Know		Disagree	
	Male	Female	Male	Female	Male	Female
Question no 1	81.82%	87.50%	3.63%	3.12%	14.54%	9.37%
Question no 2	74.54%	78.12%	7.27%	6.25%	18.18%	15.62%
Question no 3	78.18%	81.25%	7.27%	3.12%	14.54%	15.62%

Question no 5		67.27%	68.75%	23.63%	18.75%	9.09%	12.50%
Question no 6		70.90%	71.87%	9.09%	3.12%	20%	25%
Question no 7		72.72%	75%	10.91%	6.25%	16.36%	18.75%
Question no 8		81.82%	84.37%	12.73%	9.37%	5.45%	6.25%
Question no 9		40%	25%	14.54%	3.12%	45.45%	71.87%
Question no 10		69.09%	87.50%	16.36%	3.12%	14.54%	9.37%
Question no 11		18%	46.87%	18.18%	15.62%	23.63%	37.50%

based questionnaires, “in the three point response scale”, among Male and Female 2nd M.B.B.S. student of 2010-2011 batch of Burdwan Medical College, West Bengal, India.



In my study, 45 male students (81.82%) agreed that computer aided teaching-learning programme is interesting, while 28 (87.5%) female students agreed that. More than 75% students of both sex, agreed that this latest gadget, as a teaching-learning tool is better tool than others, and it becomes inevitable and easy to handle. While 22 male students (40%) and 8 female student(25%) agreed that this new gadget of teaching-learning process is expensive, impractical, in this part of the country and it is difficult to integrate with the mainstream curriculum where as 25 male students (45.45%) and 23 female students (71.87%) disagreed that. 45 male students (81.82%) and 84.37% of the female students both agreed that expansion of computer aided teaching-learning programme requires cultural changes, as well as careful strategic planning. 24 female (75%) students and 40 male (72.72%) students agreed that this programme is an extremely efficient way to achieve the ultimate goal of higher education. 32 male students (58.18%) and 46.87% (15) female students agreed that there was no fear factor, where as 37.5% female and 23.63% male students disagreed that.

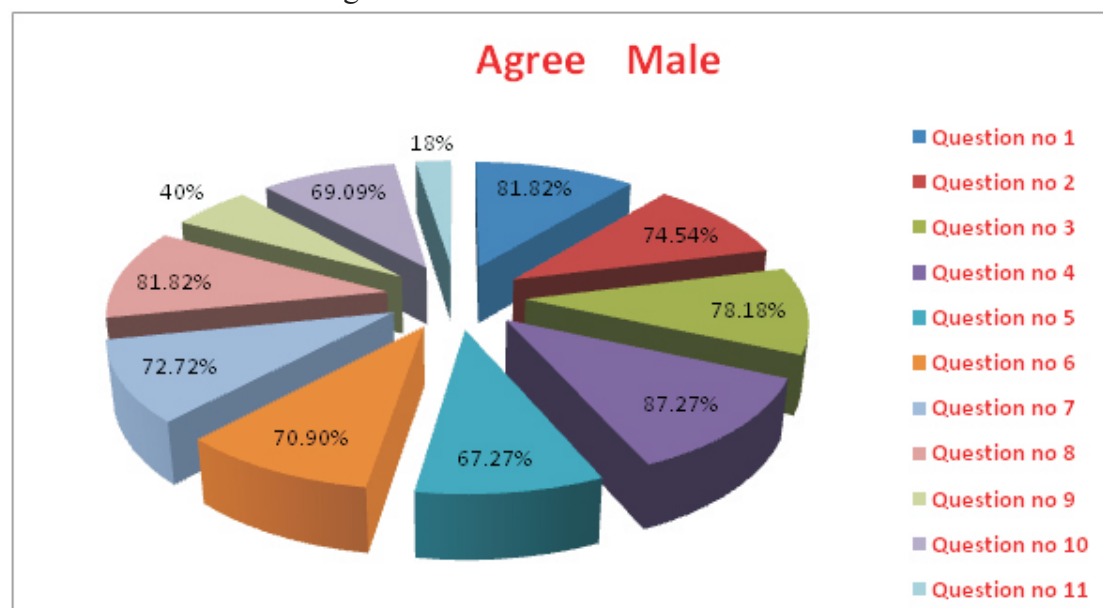
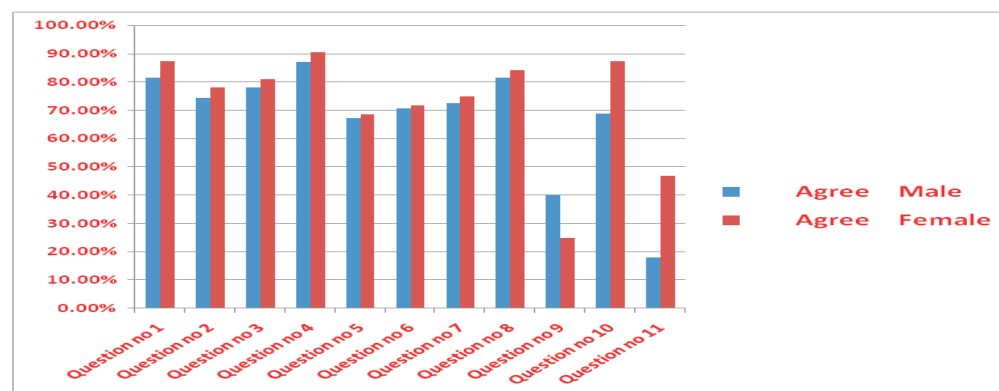


Figure No 3: Showing the distribution pattern of agreed type of response of male students.

The comparative distribution patterns of “agreed” response of both male and female students are shown in Figure No 4:



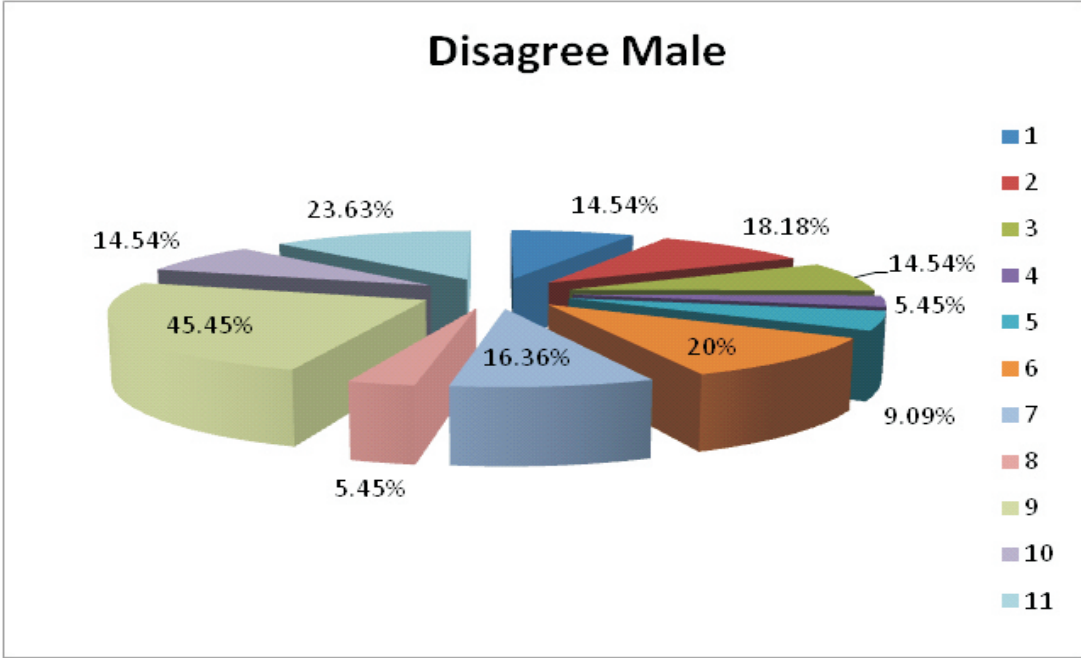
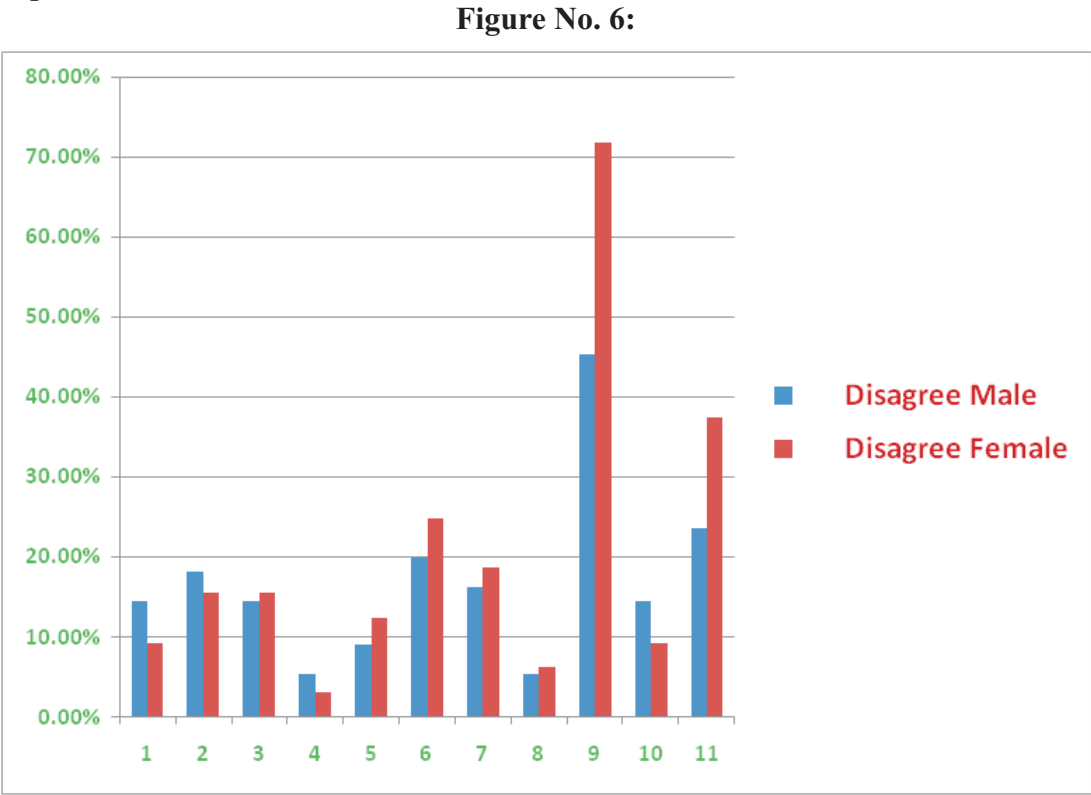


Figure No 5.
In the Figure No 5, the distribution patterns of “disagreed” type of response of male students are shown.

In the Figure No 6, the comparative distribution patterns of “disagreed” type of response of both male and female students are shown.



The comparative distribution pattern of response in three point scale, among both male and female students showed a significant difference between their perception ($p < 0.05$). Female students were more responsive and their perception regarding the computer aided teaching-learning programme, were better than the male students.

DISCUSSION

An increase in student numbers, ever-escalating work, commitments for academic staff, and the advancement of information technology has made the use of computer aided teaching-learning programme, as an attractive tool for many institutions [11] and it has an important advantage, it stimulate the “cognitive” process, of the student so that remembering, understanding, applying, analyzing, evaluating, creating activity of the student will be increased [12].

But there is a failure to reach every student in properly, that is why in my study, 40% male students and 25% female students believed that this new, innovative teaching-learning tool, is impractical and difficult to integrate with the mainstream curriculum, but majority of the students (>80%) of both sexes gave their opinion that expansion of computer aided teaching-learning programme requires cultural changes, especially in this part of the country, West Bengal, India, as well as need of careful strategic planning and integration of web technology into the traditional undergraduate medical course, because lacking of these probably leading to failure from the part of the students to engage with newly introduced technology.

Devitt and Palmer defined different stages of the integration of web technology into the traditional undergraduate medical course [13], such as – (1) Potential students should have scope for direct access to the web page, containing the course. (2). Course materials should have the link to the public access websites, (3), Students generate web based resources and share them on an internal website, (4), The main course resources such as lecture notes, slides, should be available on internal website. (5) Students should prepare materials based on the content of the course, such as clinical case histories, for other students and should publish them on the internet. (6) Participation in web based learning activities should be based on course requirements and should extend beyond the class (7) For residential students, web service should act as an alternative delivery mechanism, as the students in the campus, without attending the face-to-face classes, may work with this website and entire course should be available on the web, so that the students can access from anywhere.

Computer aided teaching-learning programme is a newly introduced technology as a tool of teaching-learning procedure. So there was a not only scope but also a demand of evaluation of perception of undergraduate medical students.

Previously many studies done on this aspect, but there were varying results [13, 14, 15, 16] and their studies were based on comparative and interventional.

CONCLUSION

Medical Education Providers within the traditional teaching-learning programme, having embracing the concept of this new gadget, supplement the existing teaching-learning tool, by supplying high quality information based material and producing some creativity, though these are in a minority but most academics will not support the computer aided teaching-learning programme [17]. So developing of the application of the computer aided teaching-learning programme, is a lengthy and obviously a skilled process. As there are various types of this newly introduced technology, so in this field there is need of further study, in this part of the country,

Burdwan Medical College, West Bengal, India, especially to compare the different types of computer aided teaching-learning programme with the conventional tool of teaching-learning process to achieve a definitive conclusion.

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